

Emerging roles for biomedical librarians: a survey of current practice, challenges, and changes

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DOI: <http://dx.doi.org/10.3163/1536-5050.101.4.009>

Objective: This study is intended to (1) identify emerging roles for biomedical librarians and determine how common these roles are in a variety of library settings, (2) identify barriers to taking on new roles, and (3) determine how librarians are developing the capacity to take on new roles.

Methods: A survey was conducted of librarians in biomedical settings.

Results: Most biomedical librarians are taking on new roles. The most common roles selected by survey respondents include analysis and enhancement of user experiences, support for social media, support for systematic reviews, clinical informationist, help for faculty or staff with authorship issues, and implementation of researcher profiling and collaboration tools. Respondents in academic settings are more likely to report new roles than hospital

librarians are, but some new roles are common in both settings. Respondents use a variety of methods to free up time for new roles, but predominant methods vary between directors and librarians and between academic and hospital respondents. Lack of time is the biggest barrier that librarians face when trying to adopt new roles. New roles are associated with increased collaboration with individuals and/or groups outside the library.

Conclusion and Implications: This survey documents the widespread incorporation of new roles in biomedical libraries in the United States, as well as the barriers to adopting these roles and the means by which librarians are making time for them. The results of the survey can be used to inform strategic planning, succession planning, library education, and career development for biomedical librarians.

INTRODUCTION

Background and purpose

New roles for medical librarians are discussed at conferences, on blogs, in email discussion list conversations, and in the published literature. Though the literature contains many case studies and surveys of various subpopulations of biomedical librarians, the authors were unable to find any studies that included a broad snapshot of emerging roles across biomedical settings and positions. So, we conducted a survey of practicing biomedical librarians to (a) identify emerging roles and determine how common these roles are, (b) identify barriers to taking on new roles, and (c) identify ways that librarians are developing the capacity to take on new roles. The results of this survey could be used to inform strategic planning, succession planning, library education, and career development for individual librarians or potential librarians.


To keep the project manageable and current, we limited the scope to include only roles that have emerged in the last few years or are currently emerging. Admittedly, that criterion is subjective, but the selection of roles was informed by the


systematic review reported elsewhere in this issue [1]. We knowingly omitted roles such as supporting digital collections, institutional repositories, and on-line education, because those roles have been around for at least a decade and appear to be well established. We also limited the scope of this study to librarians in biomedical settings.

Brief literature review

This section includes a short review of selected literature published in the last ten years that (a) addresses the general topic of emerging roles in medical librarianship rather than focus on a specific role and (b) includes some type of study or description of roles, rather than only commentary. For a more detailed review of published literature on emerging roles for biomedical librarians, see the systematic review appearing elsewhere in this issue [1].

Two recent books and two special issues of journals addressed emerging roles for biomedical librarians. Brettle and Urquhart's edited collection focused on the United Kingdom but included relevant information for librarians in other regions too and detailed descriptions of the context in which new roles have been emerging, as well as a number of case studies showing how these roles have been being implemented [2]. The second book, a Medical Library Association (MLA) DocKit focusing on position descriptions in health sciences libraries, included the results of a brief survey on trends and a collection of position descriptions, many of which described the emerging roles covered by this study [3]. *Reference Services Review* published two special issues on emerging roles

 This article has been approved for the Medical Library Association's Independent Reading Program <<http://www.mlanet.org/education/irp/>>.

 A supplemental appendix is available with the online version of this journal.

in 2004 and 2005. Both issues featured articles on a variety of emerging roles, most of which were case studies [4, 5].

Many articles have been written on emerging roles, but most are case studies of a single role in a single institution. The exceptions are noted here. Thibodeau and Funk reported the results of a survey of hospital librarians conducted in 2005/06 as part of the MLA Vital Pathways for Hospital Librarians project. Their results showed decreases in the number of hospital library staff and illustrated the changing roles of hospital librarians in response to new technologies [6]. Kronenfeld interviewed professional staff at four academic health sciences libraries to identify trends associated with the shift from print to digital resources. He identified seven major trends, including professional staff performing more work outside the library and information systems being integrated with each other and with user workflows [7]. Goetsch examined job announcements from academic libraries in 1995, 2000, and 2005. From this analysis, "a re-envisioned and interrelated set of four new core responsibilities emerges": "consulting services" or "embedded subject librarians"; "information lifecycle management—the curation of research, institutional, and cultural records, both physical and digital, and the creation and maintenance of repositories"; "collaborative print and electronic collection building"; and "information mediation and interpretation" [8]. More recently, McGowan reported the results of a study featuring surveys and semi-structured interviews with directors of academic health sciences libraries. Results of the survey addressed full-time equivalents (FTEs) devoted to various functions, including many that related to the emerging roles covered by this study, while the interviews "centered on collaborations, new service models, and participation in research and educational programs...Concepts that permeated the interview responses were the need for librarians to go where information needs might arise; for librarians to possess additional credentialing beyond the [master's of library science] MLS...and for librarians to become more involved in the fabric of the institution" [9].

METHODOLOGY

We conducted a survey using SurveyMonkey <<http://www.surveymonkey.com>> (Appendix, online only). The survey included general questions about the respondent (e.g., current work setting, state and country, degrees held, years since library degree if applicable, and area of primary responsibility). Those who indicated that they were directors were routed to a separate section of the survey, so that responses from directors and other staff could be analyzed separately and compared as appropriate. For simplicity, we will use "librarians" to refer to non-directors henceforth. Both sections of the survey asked similar questions, but the directors were asked to respond for the library as a whole, while librarians were asked to respond based on their individual

experiences. Both sections provided a list of emerging roles and asked respondents to indicate whether they had added each role more than two years ago, added it within the last two years, probably would add it in the next two years, or had no plans to add it. The following roles were listed in the survey: data management or data curation; development of ontologies or taxonomies; portfolio analysis (tracking of research impact in an agency or institution); implementation or support for researcher profiling or collaboration tools; support for systematic reviews; support for bioinformatics (beyond traditional librarian functions); analysis or enhancement of the user experience; support for social media; help for faculty or staff with authorship issues (e.g., negotiating author rights, open access versus traditional publishing); help for institutional authors to comply with the National Institutes of Health (NIH) public access policy; help for authors, departments, or administrators to comply with other funder mandates (e.g., publication reports for grants); support for grant writing (other than traditional literature searches); service as a clinical informationist; service as a bioinformatics or biosciences informationist; service as a public health informationist; and service as an embedded librarian. An "Other (please specify)" option was also provided. Respondents were then asked how they were making time for new roles, which traditional tasks they were reducing or eliminating, what barriers they faced when adopting new roles and functions, and how new roles have affected collaboration with people or departments outside the library.

This study was approved by the City of Hope Institutional Review Board (IRB) on January 7, 2013 (protocol #12402).

The target population for the survey was broadly defined, and a non-probabilistic convenience sample was used. Survey invitations were sent out to the following email lists between January 14 and January 17, 2013: MLA's MEDLIB-L, the Association of Academic Health Sciences Libraries' (AAHSL's) AAHSL-ALL, MLA Leadership and Management Section, MLA Cancer Librarians Section, MLA Consumer and Patient Health Information Section (CA-PHIS), MLA Hospital Libraries Section, MLA Mid-Atlantic Chapter, MLA Midcontinental Chapter, Medical Library Group of Southern California and Arizona, Northern California and Nevada Medical Library Group, Central Arizona Biomedical Library Association, MLA Federal Libraries Section, MLA Research Section, and MLA Corporate Information Services Section. Recipients were encouraged to forward the survey invitation to others who might be interested. The survey was also announced in the January issue of the *MLA News*. Recipients were invited to participate in a short survey, requiring about ten minutes to complete, to identify emerging roles for biomedical librarians. All librarians currently employed in a biomedical setting were eligible to participate.

To obtain the most complete information possible, the survey included open-ended questions, and some

Table 1
Roles, librarians and directors*

Role	Librarians (n=405)						Directors (n=118)					
	Added		Planned		Total		Added		Planned		Total	
Analysis/enhancement of user experience	214	(53%)	73	(18%)	287	(71%)	52	(44%)	32	(27%)	84	(71%)
Bioinformatics/biosciences informationist	73	(18%)	50	(12%)	123	(30%)	21	(18%)	13	(11%)	34	(29%)
Clinical informationist	124	(31%)	60	(15%)	184	(45%)	33	(28%)	28	(24%)	61	(52%)
Data management/data curation	117	(29%)	78	(19%)	195	(48%)	21	(18%)	27	(23%)	48	(41%)
Development of ontologies/taxonomies	47	(12%)	34	(8%)	81	(20%)	16	(14%)	7	(6%)	23	(19%)
Embedded librarian	140	(35%)	73	(18%)	213	(53%)	38	(32%)	24	(20%)	62	(53%)
Help for authors/department/administrators to comply with funder mandates (e.g., publication reports for grants)	85	(21%)	77	(19%)	162	(40%)	38	(32%)	23	(19%)	61	(52%)
Help for faculty/staff with authorship issues (e.g., negotiating author rights, open access vs. traditional publishing)	160	(40%)	62	(15%)	222	(55%)	58	(49%)	18	(15%)	76	(64%)
Help for institutional authors to comply with the National Institutes of Health (NIH) public access policy	110	(27%)	52	(13%)	162	(40%)	46	(39%)	19	(16%)	65	(55%)
Implementation/support for researcher profiling/collaboration tools	139	(34%)	98	(24%)	237	(59%)	31	(26%)	31	(26%)	62	(53%)
Portfolio analysis (tracking of research impact within an agency/institution)	76	(19%)	72	(18%)	148	(37%)	16	(14%)	28	(24%)	44	(37%)
Public health informationist	78	(19%)	35	(9%)	113	(28%)	16	(14%)	7	(6%)	23	(19%)
Support for bioinformatics (beyond traditional librarian functions)	76	(19%)	97	(24%)	173	(43%)	24	(20%)	27	(23%)	51	(43%)
Support for grant writing (other than traditional literature searching)	84	(21%)	70	(17%)	154	(38%)	19	(16%)	26	(22%)	45	(38%)
Support for social media	185	(46%)	72	(18%)	257	(63%)	59	(50%)	29	(25%)	88	(75%)
Support for systematic reviews	187	(46%)	71	(18%)	258	(64%)	69	(58%)	26	(22%)	95	(81%)

* Respondents could choose more than 1 response, so percentages do not total 100%.

multiple-choice questions included an "Other (please specify)" option. The first author reviewed all open-ended responses to identify recurring themes and categorized them by these themes. Both authors then discussed the themes and responses to ensure agreement.

RESULTS

Characteristics of survey respondents

The survey was attempted by 686 respondents and completed by 525. More than 92% of respondents were from the United States and 4.5% from Canada, with very small percentages from a few other countries. Nearly all US states were represented. Respondents indicated a variety of work settings: the most common were academic health sciences libraries (294, 46%) and other hospital, health facility, or health system libraries (248, 39%) (Appendix, Table 1). Thirty respondents selected "Other library, not biomedical" and were then taken to the end of the survey, as this question was intended to eliminate respondents from non-biomedical settings. Respondents were asked to indicate their primary responsibility in their current position (Appendix, Table 1). The largest categories of respondents were solo librarians (147, 23%), directors (140, 22%), and reference/instruction librarians (106, 17%). Sixty respondents (9%) selected "Other (please specify)." Their free-text responses were analyzed and categorized. No new categories emerged from this analysis. Many free-text responses fell into categories specified in the question but with slightly different wording, while about a third did not include enough information to allow accurate categorization. None of the respondents selecting "Other" were included in analyses by position. However, 96 respondents

skipped this question, suggesting that their primary area of responsibility either was not represented on the list or the terms used on the list did not match their titles.

Over 96% of respondents reported holding an MLS. Just over 5% reported having a master's of science (MS) in a scientific field, and over 2% a doctorate (PhD) in either a scientific or clinical field. Very few reported holding medical degrees (MDs) or nursing degrees. Of those with an MLS, 46% obtained their degrees more than 20 years ago.

New roles and responsibilities

Librarians were presented with a list of new roles and asked which had been added to their positions recently, while directors were given the same list and asked which roles they or their library had added recently. For each role, respondents were asked to indicate if the role had been added more than two years ago or within the last two years, if they planned to add it in the next two years, or if they had no plans to add the role (Table 1; breakout by work setting in Appendix, Table 2).

Fewer than 10% indicated they had not added any new roles and did not plan to do so. Of those, 24 (75%) listed other hospital, health facility, or health system library as their current work setting, compared to 39% of all respondents. Seventeen (53%) earned their MLS more than 20 years ago, compared to 43% of all respondents; and 18 (64%) indicated that they were solo librarians, compared to 26% of all respondents.

Hospital/health facility librarians were less likely than academic librarians to indicate they had added or planned to add an emerging role. The average percentage of respondents choosing "no plans to add" was 62% for respondents from hospital or health system libraries and 49% from academic health

Table 2
Most and least common roles (added or planned) by setting*

		Librarians		Directors	
Most common roles					
Academic	Analysis/enhancement of user experience	138	(74%)	Support for systematic reviews	50 (86%)
	Support for social media	135	(73%)	Analysis/enhancement of user experience	44 (76%)
	Support for systematic reviews	132	(71%)	Help for faculty/staff with authorship issues	47 (81%)
	Help for faculty/staff with authorship issues	128	(69%)	Support for social media	47 (81%)
Hospital/health system	Analysis/enhancement of user experience	99	(66%)	Support for social media	28 (68%)
	Clinical informationist	83	(56%)	Support for systematic reviews	29 (71%)
	Support for systematic reviews	80	(54%)	Analysis/enhancement of user experience	28 (68%)
	Implementation of researcher profiling/ collaboration tools	71	(48%)	Clinical informationist	25 (61%)
All respondents	Analysis/enhancement of user experience	287	(71%)	Support for systematic reviews	95 (81%)
	Support for systematic reviews	258	(64%)	Support for social media	88 (75%)
	Support for social media	257	(63%)	Analysis/enhancement of user experience	84 (71%)
	Implementing researcher profiling/ collaboration tools	237	(59%)	Helping faculty/staff with authorship issues	76 (64%)
Least common roles					
Academic	Development of ontologies/taxonomies	37	(20%)	Development of ontologies/taxonomies	12 (21%)
	Public health informationist	46	(25%)	Public health informationist	17 (29%)
	Bioinformatics/biosciences informationist	51	(27%)	Bioinformatics/biosciences informationist	24 (41%)
	Clinical informationist	66	(35%)	Portfolio analysis (tracking of research impact within an agency/institution)	27 (47%)
Hospital/health system	Development of ontologies/taxonomies	16	(11%)	Public health informationist	1 (2%)
	Help for institutional authors to comply with the NIH public access policy	33	(22%)	Bioinformatics/biosciences informationist	4 (10%)
	Bioinformatics/biosciences informationist	38	(26%)	Development of ontologies/taxonomies	5 (12%)
	Portfolio analysis (tracking of research impact within an agency/institution)	40	(27%)	Support for bioinformatics (beyond traditional librarian functions)	7 (17%)
All respondents	Development of ontologies/taxonomies	81	(20%)	Development of ontologies/taxonomies	23 (19%)
	Public health informationist	113	(28%)	Public health informationist	23 (19%)
	Bioinformatics/biosciences informationist	123	(30%)	Bioinformatics/biosciences informationist	34 (29%)
	Portfolio analysis (tracking of research impact within an agency/institution)	148	(37%)	Portfolio analysis (tracking of research impact within an agency/institution)	44 (37%)

* Respondents could choose more than 1 response, so percentages do not total 100%.

sciences libraries. Results for directors showed a similar difference between academic and hospital settings: the average percentage of respondents choosing "no plans to add" was 62% for hospital library directors and 37% for academics. Table 2 provides a summary of the most and least common roles reported by librarians and directors in academic and hospital settings, as well as across all settings.

The least common role for both academic and hospital librarians was developing ontologies or taxonomies. However, the 2 groups differed in terms of other uncommon roles. Hospital librarians were least likely to report performing or planning to perform the following roles: helping authors comply with the NIH public access policy (22%), serving as a bioinformatics/biosciences informationist (26%), and analyzing portfolios (27%). Academics, on the other hand, were least likely to serve as any type of informationist (Table 2).

Results were also analyzed to identify which roles were most likely to be in place and which were most likely to be planned for the next 2 years (Appendix, Table 10). For established roles, results were similar for librarians and directors. Both groups identified the following roles as most likely to be already in place: analyzing or enhancing the user experience (53% of librarians and 48% of directors), supporting systematic reviews (46% of librarians and 58% of directors), supporting social media (46% of librarians and 51% of directors), and helping faculty or staff with

authorship issues (40% of librarians and 51% of directors). For roles planned in the next 2 years, implementing or supporting researcher profiling and collaboration tools was commonly selected by both librarians and directors (24% of librarians and 29% of directors). Other popular choices, however, differed between the 2 groups. Librarians were most likely to select supporting bioinformatics (beyond traditional librarian functions) (24%), managing or curating data (19%), and helping authors, departments, or administrators comply with other funder mandates (e.g., publication reports for grants) (19%). Directors were most likely to select analysis or enhancement of the user experience (30%), support for social media (26%), and clinical informationist (25%). Responses were somewhat similar between academic and hospital respondents, with a few exceptions. For established roles, help for faculty or staff with authorship issues appeared in the top 4 for academic, but for not hospital librarians; while clinical informationist was in the top 4 for hospital, but not for academic librarians. For roles planned in the next 2 years, support for bioinformatics (beyond traditional librarian functions); data management or data curation; help for authors, departments, or administrators to comply with other funder mandates (e.g., publication reports for grants); and portfolio analysis (tracking of research impact within an agency or institution) were among the top 4 responses for academic librarians and/or directors, but not for hospital librarians or directors.

Table 3

If you are reducing or eliminating traditional tasks or functions to make time for new roles, which ones are you eliminating (librarians)?*

Category	Academic (n=71)		Hospital (n=57)		All respondents (n=153)	
Reference desk	33	(46%)	4	(7%)	37	(24%)
Print collections	4	(6%)	25	(44%)	35	(23%)
None, n/a	9	(13%)	7	(12%)	21	(14%)
Cataloging	2	(3%)	14	(25%)	19	(12%)
Collection development	7	(10%)	4	(7%)	16	(10%)
Delegating	5	(7%)	7	(12%)	13	(8%)
Reference questions	12	(17%)	0	(—)	13	(8%)
Training/instruction	5	(7%)	3	(5%)	8	(5%)
Circulation	2	(3%)	5	(9%)	7	(5%)
Interlibrary loan (ILL) processing	1	(1%)	4	(7%)	7	(5%)

* Table includes categories mentioned by at least 5% of respondents.

Results were analyzed by time since receiving a master's in library and/or information science (MLS, MLIS, MSLS). In our initial analysis, it appeared that librarians who received their MLS more than 20 years ago were less likely to take on new roles. Further analysis, however, revealed that these librarians were more likely to identify themselves as associate/assistant/deputy directors (11%) or solo librarians (29%). As noted above, both of those groups were most likely to report that they had not added any new roles and did not plan to do so; thus, it is possible that time since MLS, by itself, does not have a significant influence on whether a librarian will adopt a new role.

For most roles, rates of adoption or planned adoption were similar for those with and without an MLS, though there were a few exceptions: help for institutional authors to comply with the NIH public access policy (only 13% of non-MLS-holders added or planned to add, compared with 42% of MLS holders); service as bioinformatics/biosciences informationist (43% of non-MLS holders versus 29% of MLS holders); and public health informationist (43% of non-MLS holders versus 27% of MLS holders).

Results were analyzed to determine whether the adoption of new roles was related to the position held by the respondent. Very few respondents identified as collection development librarians (9), technical services librarians (10), systems/electronic resources management librarians (15), user experience librarians (7), biological sciences librarians (7), or scholarly communication librarians (1). The first 3 of these areas were combined for the purpose of analysis, while the latter 3 were removed before the data were tabulated, because the number of respondents was too small to allow for inferences. Results are summarized by role and position in Table 3 of the appendix. The percentage reporting that they had added or planned to add each role was averaged across roles for each position. Informationists and liaison librarians were most likely to report adopting or planning to adopt emerging roles, with the percentage across all roles averaging 65% for informationists and 56% for liaison librarians. Two categories of respondents were least likely to report adopting or planning to adopt emerging roles: solo librarians and collection development/technical services/systems/e-resources librarians. The average percentage of adoption across all roles was the same for both groups (38%).

Time for new roles

Respondents were asked to indicate how they are making time for new roles (Appendix, Tables 4 and 5). Not surprisingly, the most popular strategy used by librarians to make time for new roles was to add them to the existing workload (53%). The most popular response from directors, who were asked how their libraries found time and resources to support new roles, was to spend less time on traditional tasks, selected by 69% of respondents. Only 8% of librarians and 6% of directors indicated that they or their libraries had not added any new roles and did not plan to do so in the next 2 years. Of the librarians who indicated that no new roles had been added to their jobs, 16% were from hospital libraries, compared to 2% of academics and 8% overall.

Respondents were then asked to answer an open-ended question: "If you are reducing or eliminating traditional tasks/functions to make time for new roles, which ones are you eliminating?" The 153 free-text responses by librarians were analyzed and categorized by general theme. Some responses were assigned to more than 1 category as needed to characterize all tasks and functions mentioned in the response (Table 3). Among categories mentioned by at least 5% of respondents, the most common categories were: tasks associated with traditional reference service (reference desk, 24%; reference questions, 8%) and tasks associated specifically with print collections (print collections in general, 23%; circulation, 5%; cataloging, 12%; collection development, 10%). Two categories of responses were mentioned much more often by hospital respondents than academics: tasks associated with print collections and cataloging. Academics were more likely to mention reducing or eliminating reference desk duties and answering reference questions. Though not included in the tables, results for directors were similar. Of 72 responses, 24% mentioned the reference desk (the same as the percentage of librarian respondents), 15% cataloging (versus 12% of librarians), and 11% collection development (versus 10% of librarians) as areas being reduced or eliminated.

Barriers to adopting new roles

Respondents were asked to indicate barriers to taking on new roles. For each of several barriers, they were

Table 4
Barriers, librarians versus directors

	n	Major problem		Slight problem		Not a problem	
Librarians							
Lack of necessary educational background	370	52	(14%)	183	(49%)	135	(36%)
Lack of knowledge or skills to perform these tasks	375	63	(17%)	201	(54%)	111	(30%)
Lack of funding for education or training	368	101	(27%)	140	(38%)	127	(35%)
Lack of time for education or training	370	123	(33%)	158	(43%)	89	(24%)
Lack of time to perform these functions	372	140	(38%)	150	(40%)	82	(22%)
Directors							
Staff lack necessary educational background	115	34	(30%)	49	(43%)	32	(28%)
Staff lack knowledge or skills to perform these tasks	119	37	(31%)	55	(46%)	27	(23%)
Lack of funding for staff education or training	120	32	(27%)	46	(38%)	42	(35%)
Lack of time for staff education or training	117	34	(29%)	50	(43%)	33	(28%)
Not enough staff to perform these functions or existing staff too busy	122	61	(50%)	44	(36%)	17	(14%)

* Respondents could choose more than 1 response, so percentages do not total 100%.

asked to indicate whether the barrier was a major problem, a minor problem, or no problem. Both directors and other staff identified lack of staff time as the biggest barrier (Table 4). Thirty-eight percent of librarians reported lack of time was a major problem, while 50% of directors indicated that lack of staff time was a major problem. Directors in academic settings were more likely than their hospital counterparts to identify lack of educational background (36% versus 14%) and lack of knowledge or skills (34% versus 16%) as major barriers (Appendix, Table 7). Responses from librarians did not reflect this difference. The percentages of respondents indicating that a barrier was a major problem were fairly similar in both settings: 13% for academic and 14% for hospital librarians for lack of educational background and 16% for academic and 18% for hospital librarians for lack of knowledge or skills (Appendix, Table 6). Librarians in hospital settings were somewhat more likely than academics to identify lack of funding and lack of time as major problems: 38% versus 21% for lack of funding and 43% versus 35% for lack of time (Appendix, Table 6). Academic directors were more likely than librarians (36% versus 13%) to indicate lack of educational background as a barrier (Appendix, Tables 6 and 7).

Collaboration and new roles

Librarians were asked how their new roles affected their collaboration with people or departments outside the library, while directors were asked how new roles have affected or will affect their libraries' collaboration. At least 80% of both directors and librarians indicated that new roles have increased or will increase their collaboration with departments outside the library. Responses to the collaboration questions were compared with responses to the questions asking about specific roles (Appendix, Tables 8 and 9). The results of this analysis suggested that emerging roles were associated with increased collaboration. The percentage of respondents indicating their collaboration had increased ranged from 79% of those serving as bioinformatics/biomedical informationists to 90% of those helping authors

comply with the NIH public access policy. The percentages for directors were slightly higher, ranging from 81% of those whose libraries were developing ontologies or taxonomies and doing portfolio analysis to 97% for those whose libraries included clinical informationist positions or functions.

DISCUSSION

These results are not surprising, but they document and quantify what is happening across a variety of settings, institutions, and individuals, giving a clearer, more comprehensive picture than case studies and anecdotal data alone. Several patterns and themes emerge from responses to this survey. Key findings can be summed up as follows: Many biomedical librarians are taking on new roles as nearly all respondents indicate they or their libraries have taken on new roles and/or plan to do so in the next two years. Academic respondents are considerably more likely to report adopting or planning to adopt emerging roles than are hospital respondents or solo librarians. Respondents are using a variety of methods to free up time for new roles, but predominant methods vary between directors and librarians and between academic and hospital respondents. New roles are associated with increased collaboration with individuals and/or groups outside the library.

Trends in new roles

Respondents identifying primarily as liaison librarians, embedded librarians, and informationists are most likely to report adding or planning to add emerging roles listed in the survey. But there are two exceptions. First, the data show fairly high rates of adoption or planned adoption for analyzing or enhancing the user experience across all positions, but rates are highest for respondents identifying as associate/assistant/deputy directors. Second, respondents in all categories indicate high rates of support for social media. Also noteworthy is that those identifying as reference/instruction librarians are nearly as likely to say they are serving or planning to serve as embedded librarians as are those identifying

with positions that imply a degree of embeddedness (liaison librarians and informationists), illustrating that nontraditional roles do not require nontraditional titles.

All of the roles that appear to be trending up (i.e., more likely to be planned than in place)—in both academic and hospital settings—relate to support for research: researcher collaboration tools, bioinformatics, data curation and management, and support for compliance with funder mandates. The beginning of the NIH public access policy in 2008 may have been a catalyst for librarians to become more involved in research support, especially in academic settings (e.g., Rosenzweig et al. [10], Stimson [11]). By seizing this opportunity, librarians built new relationships and demonstrated their skills and value in supporting biomedical research. That may have opened new doors, enabling librarians to expand their roles in the research enterprise.

Two categories of respondents were least likely to report adopting or planning to adopt emerging roles: solo librarians and collection development/technical services/systems/e-resources librarians. Neither of these results seems surprising. Most of the roles included in the survey seem more public services oriented, except possibly data management, so it makes sense that public-facing positions would be more likely to adopt them. Solo librarians, meanwhile, seem less likely to have time to take on new roles. In fact, just over 50% of the solo librarians responding to the survey indicated that lack of time was a major barrier to adopting new roles.

Comparison of emerging roles in academic and hospital settings

Results indicate that hospital librarians are less likely than their academic counterparts to take on new roles. In a 2005/06 survey of hospital librarians, 67.7% reported decreases in staffing [6]. Anecdotal reports suggest that hospital libraries are continuing to lose staff. Also, in our survey, 52% of respondents from hospital or health system libraries indicated that they are solo librarians (Appendix, Table 1). So, it seems likely that lack of staff is a significant factor hindering hospital librarians from taking on new roles. Meanwhile, it seems likely that academic health sciences libraries report higher rates of emerging roles because they typically have more staff and therefore more capacity for specialization, making them more able to take on new roles. Also, many of the listed roles relate to biomedical research and its associated grant funding, which is more common in academic than nonacademic environments.

Hospital and academic respondents also differed considerably in how they are making time for new roles. The most common responses from hospital staff relate to print collections and cataloging, while the top responses for academics relate to traditional reference services. This pattern seems consistent with anecdotal evidence suggesting that hospital libraries are giving up space for print collections, while academic clients

are more likely to perform searches and retrieve articles themselves. Hospital libraries also tend to have smaller collections that are focused on current clinical information, rather than extensive research collections, making detailed, customized cataloging less important in the hospital library environment.

Hospital directors are more likely than staff to indicate that roles are planned rather than established, suggesting a possible disconnect between what staff think they are doing and what their directors think they are doing. The reasons for this discrepancy are unclear.

Barriers to adopting new roles

Lack of time emerged as the biggest barrier to adopting new roles: lack of time to perform those functions and lack of time for needed education and training. Given shrinking budgets and staff reductions that have become all too common in medical libraries of all types, this finding is not surprising. What is somewhat surprising are some apparent disconnects between directors and staff regarding barriers to adopting new roles. A solid majority of directors (69%) believed their staff was making time for new roles by spending less time on traditional tasks, but only 27% of librarians indicated they were spending less time on traditional tasks. Instead, 53% indicated they were adding tasks onto their existing workload (Appendix, Tables 4 and 5). Perhaps staff members are reluctant to give up legacy tasks, even when directed to do so. Or perhaps some directors do not clearly understand how their staff spends their time. Regardless of the reasons for the discrepancy, it seems that better communication between directors and staff might lead to a more consistent strategy for addressing this problem, for librarians cannot take on new roles—roles that will expand their reach and make them more visible and relevant—if they are still trying to do everything they used to do. As Goetsch writes, “We must confront and question how we can rethink workflows, services, and other efforts in order to take work out of the system that is not meeting the needs of our users” [8].

Education and training for new roles also appear to be a challenge. After lack of time for new roles, the next two barriers most likely to be identified by librarians as major problems are lack of time for education and training and lack of funding for education and training. But again, there is a disconnect between directors and staff. Directors agree that lack of staff time is the biggest barrier, but their next two most popular answers (albeit by a small margin) are, “Staff lack knowledge or skills to perform these tasks” and “Staff lack necessary educational background.” This difference is most pronounced among academic directors. While these answers are related, the implications are slightly different. Barriers identified by staff are external—time and money—but barriers identified by directors seem more internal—characteristics of the staff members themselves rather than something that could be fixed with more

resources. More research is needed to clarify these issues, but this barrier cannot be overcome if directors and staff do not agree on its nature.

Collaboration

Collaboration is a common theme across all of the emerging roles included in this survey. These roles require closer collaboration with clinicians, researchers, and teaching faculty. Librarians are not waiting in the library to answer questions when they arise; instead, librarians are more integrated into the work constituents are doing—helping them analyze and manage data, market themselves, write and publish, find and manage external funding, and solve problems. Librarians may reside in their work areas in embedded roles, serve on cross-disciplinary teams, or coauthor papers and grants. Such close collaboration can be very rewarding for librarians. In a case study of her role as an embedded bioinformatics librarian, Tennant captures the essence of this new definition nicely: “I have received a great deal of professional satisfaction knowing that our clients see me as an equal partner...The partnerships that have been forged with faculty have integrated me into the educational and research missions of the university in a way that was not possible, even through my earlier liaison assignments” [12]. She adds that her position as an embedded bioinformatics librarian “raises the visibility of the library” [12], which is likely true for many of the other roles described in this paper, nearly all of which are more collaborative or embedded than traditional roles. In addition to professional satisfaction, the increased level of collaboration between librarians and constituents could “lead to joint ventures in research and eventual publication” [13]. This level of integration makes it more likely that librarian positions will be funded jointly with nonlibrary departments (e.g., the co-funded bioinformatics position described by Tennant in the article cited immediately above) or funded in part by nonlibrary grants.

Limitations of this study

The respondents are a non-probabilistic convenience sample. Because respondents are self-selected, the response rate is unknown, and therefore the results cannot provide a true benchmark, because we do not know if respondents are representative of the profession as a whole. We considered sending the survey to a defined population (e.g., a random sample of MLA members). Ultimately, we decided to distribute the survey more widely and generally, because the primary purpose was to identify emerging roles and barriers, not to determine specific frequencies or to compare specific populations. Also, we thought that some emerging roles might be performed by library staff who are less likely to become MLA members than those in more traditional roles (e.g., bioscientists with PhDs who work in libraries and provide specialized support to researchers).

To evaluate generalizability, we compared our sample to the MLA Compensation & Benefits Survey 2012 [14]. The MLA survey included a slightly larger percentage of Americans (95.5% versus 92.0%) and a slightly smaller percentage of Canadians (2.6% versus 4.5%). Comparing work settings between the 2 groups was not direct, because the MLA survey separated VA/military into its own category. Excluding VA/military respondents (which could not be classified as hospital or not hospital), 45.5% of MLA salary survey respondents were from hospitals, while adding the military/VA as hospital respondents increases the percentage to 53.0%. Academic respondents made up 26.3% of respondents. Either way, the MLA survey includes a larger percentage of hospital respondents and a smaller percentage of academic respondents than the emerging roles survey does, suggesting that academics are overrepresented and hospital librarians underrepresented, compared to MLA members in general.

Almost immediately upon launching the survey, two problems with the design became apparent. Questions that required a response but also offered an “Other (please specify)” option did not work as intended. Respondents who selected “Other” were not allowed to continue, because “Other” was not recognized as a response. Affected questions were made optional within a day of launching the survey. The second problem was more serious. The first question, designed to identify library type and screen out respondents who were not biomedical librarians, did not include an option for biomedical librarians working in non-biomedical settings (e.g., librarians serving nursing students at general universities). Several respondents in these settings contacted the authors, asking how to respond. They were directed to choose “Other biomedical library (please specify).” However, there is no way to know how many librarians in these settings were screened out and did not contact the authors, so these librarians are likely underrepresented in the survey results.

Finally, perhaps the most serious limitation was that this survey included a list of emerging roles, rather than asking people to describe what new things they are doing. Though an “Other (please specify)” option was included, it seems likely that people’s responses were shaped by the provided list, which probably limited the ability of this survey to ferret out roles that were not listed.

Emerging roles: the bigger picture

The roles currently emerging for biomedical librarians are revolutionary as well as evolutionary. These roles are changing not only what we do, but the way we relate to our constituents and the nature of what it means to be a librarian. Many of the roles identified in this study provide opportunities for us to function as true partners—rather than as assistants or support staff—in teaching, research, and clinical care.

These results suggest that librarians face significant barriers when attempting to take on new roles—

especially lack of time. If we are to enjoy the benefits of new roles and remake ourselves into partners in the health care, research, and medical education enterprises, we must find a way to reduce the time we spend on legacy work. As Bracke, Herubel, and Ward write, "Librarians can decide to wait for change and adapt, however painfully, when it is no longer possible to maintain old ways. The authors advocate the alternative: seizing the new opportunities that change brings or, better yet, pioneering and creating some of those opportunities" [13]. The authors of this survey agree. New roles, and the new relationships forged through them, can bring us many new challenges, opportunities, and rewards. Whether we are coauthoring a systematic review, developing data management strategies, or rounding with clinicians at 7:00 a.m., medical librarians are evolving. We are full members of the team, with vital roles to play in the success of our organizations.

CONCLUSION

This survey of medical librarians and directors confirmed and documented the widespread incorporation of new roles in biomedical libraries in the United States. Academic librarians are more likely to be taking on new roles than their hospital counterparts are, but many new roles are common in both settings. Lack of time is the major barrier to implementing new roles in both academic and hospital settings; insufficient education and training were also identified as barriers. Academic and hospital librarians are reducing or eliminating traditional tasks to make time for new roles, but the types of tasks being reduced or eliminated differs somewhat between the two settings.

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Received March 2013; accepted May 2013